



उत्पाद मानुयल

SPECIFICATION FOR STAINLESS STEEL FOR WELDING ELECTRODE CORE WIRE IS 10631:1983 के अनुसार

PRODUCT MANUAL FOR SPECIFICATION FOR STAINLESS STEEL FOR WELDING ELECTRODE CORE WIRE ACCORDING TO IS 10631:1983

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरण के प्रचलन में रीति और पारदर्शिता के सुसंगत सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	उत्पाद Product	:	IS 10631:1983
	शीर्षक Title	:	Specification for Stainless Steel for Welding Electrode Core Wire
	संशोधन संख्या No. of Amendments	:	1
2.	नमूनाकरण दिशा निर्देश Sampling Guidelines:		

a)	कच्चा माल Raw material	:	No specific requirement for raw material
b)	समूहिकरण दिशा निर्देश Grouping guidelines	:	कृप्या ANNEX – A देखें Please refer Annex A
c)	नमूने का परिमाण Sample Size	:	For Chemical Test: i) For instrumental chemical analysis- 5 pieces of 5 cm x 5 cm ii) For Wet Chemical analysis- 50 gm drillings For Mechanical tests- 2 pieces of 500 mm length (for wire rods only)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	कृप्या ANNEX – B देखें Please refer ANNEX – B
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	कृप्या ANNEX –C देखें Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षा Possible tests in a day:		All tests are possible in a day
6.	लाइसेन्स का कार्यक्षेत्र/Scope of the Licence:		
	IS 10631:1983 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है “Licence is granted to use Standard Mark as per IS 10631:1983 with the following scope:		
	Name of the product		Specification for Stainless Steel for Welding Electrode Core Wire
	Designation		X03Cr19Ni10, X04Cr21Ni10, X01Cr21Ni10.....
	Form of Steel		Billets/Wire Rod
	Sizes		Width across flats fromxx..... mm to up to and includingxx..... mm (for Billets) / Diameter fromxx..... mm to up to and includingxx..... mm(for Wire Rods)

BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002

ANNEX A TO THE PRODUCT MANUAL
FOR
Specification for Stainless Steel
for Welding Electrode Core Wire as per IS 10631:1983

GROUPING GUIDELINES

IS 10631 classifies Stainless Steel for Core Wire for Electrodes in the form of Billets and Wire Rods of various steel designations based upon their chemical composition.

For the purpose of GoL/Inclusion, the following Grouping Guidelines shall be considered:-

Group	Steel Designation	Remarks
1	X03Cr19Ni10 X04Cr21Ni10 X01Cr21Ni10 X01Cr19Ni10Mo2 X07Cr24Ni12 X01Cr24Ni12 X12Cr26Ni21 X05Cr30Ni9 X05Cr12 X05Cr17 X04Cr19Ni12Mo2 X04Cr18Ni11Nb1 X06Cr19Ni9Mo1	One sample of each steel designation may be drawn and tested for all requirements of the specification. Separate Samples need not be drawn for Wire Rods and Billets.

1. During preliminary inspection, before drawing samples for independent testing, it shall be ensured by IO that tests for Freedom from Defects as per cl.6. & Size and Tolerances as per cl.7. of IS 10631:1983, may be carried out at factory premises on the samples to be drawn for independent testing as it is difficult to transport bulky samples (especially for Billets) to laboratory. In case of inclusion, factory test report for Freedom from Defects as per cl.6. & Size and Tolerances as per cl.7. of IS 10631:1983 may be accepted and conformity of the grades included to the same has to be verified during next surveillance visit.

2. It shall be ensured that the firm is having all the necessary manufacturing and testing facilities for the manufacture and testing of the sizes/designations to be included in the licence.

3. During the operation of licence, BO shall ensure that all the designations/ sizes covered in the license are drawn for independent testing on rotation over a period of time.

ANNEX B TO THE PRODUCT MANUAL
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List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Test Equipment	Tests used in with Clause Reference
1	Device for instrumental chemical analysis such as Optical Spectrometer with all requisite channels OR • Carbon Sulphur (Strohlein's type) Apparatus – Complete set consisting of glass parts, combustion furnace, oxygen cylinder , combustion tubes/ boats etc. • Porcelain boat (capable of withstanding 1150 deg. C) • Weighing Balance • Hot plate • Muffle furnace • Induction Furnace • Barometer, Thermometer • Burette, Pipette and Full Range of Lab. Glassware like : Conical Flasks , Beakers, Funnel, Pipettes Glass rod, watch Glass, Brush etc. • Standard Reference Material • Platinum Crucible for Silicon Test • Dessicator • Filter paper, Whatman Filter Paper & Ash less clippings • Drilling machine Chemicals and reagents as applicable (Indicative element wise list of test apparatus, chemicals and reagents is enclosed)	Chemical Composition (Clause 5) (C, Si, Mn, P, S, Cr, Ni, Mo, Nb)

2	Chemical methods Laboratory Reagents and chemicals, Glass ware, Apparatus as per relevant parts of IS 228	Chemical Composition (Clause 5)
	Strohlein or Leco apparatus with all attachments Barometer with chart, Hot plate, Muffle furnace, Complete range of glass wares, measuring cylinders, Desiccator, porcelain boats or ceramic crucibles, Thermometer, Electronic Balance, Distilled Water, Hot air oven, Oxygen - 99.5 percent minimum purity, ether or acetone Standard Reference Material (NML) with certificate Reagents for C: tin granules or pure iron fillings, acidulated water/brine water, methyl red, caustic potash Reagents for S: Ceramic boats/crucibles – desiccators, Fluxes - Low sulphur copper, tin or iron, Dilute hydrochloric acid, Starch Iodide solution, Potassium iodate	C & S (Table 1)
	Weighing balance, Heater/ Heating element along with energy regulator, Ice water bath, Vol Flask Cap – 1 litre, (Whatman) filter paper No. 040, Suction Filtration Facility, Filter paper pulp pad, Standard Reference Material (NML) with certificate, Potassium Permanganate (KMnO ₄), Sodium Nitrite (Na ₂ NO ₃), Ammonium Molybdate [(NH ₄) ₂ Mo ₂ O ₇], Ammonium Phosphate [(NH ₄) ₃ PO ₄], Potassium Nitrate (K ₂ NO ₃), Phenolphthalein Solution, Rectified spirit or methyl alcohol, Sodium Hydroxide (NaOH), Hydrofluoric Acid (HF), Perchloric Acid (HClO ₄), Sulphurous Acid, Hydrobromic Acid (HBr), other chemicals and reagent as applicable	Phosphorus content (Table 1)
	Hot plate, Conical flask Reagents: silver nitrate, ammonium persulphate sodium arsenite solution, Dilute Nitric Acid, Phosphoric Acid, Dilute Sulphuric Acid, Concentrated Nitric Acid, NaCl Solution, Permanganic acid	Manganese content (Table 1)
	Medium textured filter paper, Porcelain casserole, platinum crucible, filter paper pulp, hot plate, hot air oven, muffle furnace Reagents: Silver nitrate solution, concentrated nitric acid, concentrated sulphuric acid, Dilute Hydrochloric Acid,	Silicon content (Table 1)

	Dilute Sulphuric Acid, Perchloric Acid, Tartaric acid and hydrofluoric acid	
	ashless paper pulp, paper pulp pad, hot plate, dessicator, Reagents: ammonium nitrate, methyl red, dilute ammonium hydroxide, Concentrated hydrochloric acid Concentrated nitric acid, Perchloric acid, Hydrofluoric Acid	Ni content (Table 1)
	Hot plate, stop watch Reagents: dilute sulphuric acid and phosphoric acid mixture, concentrated nitric acid, ammonium persulphate, silver nitrate, dilute hydrochloric acid, ferrous ammonium sulphate, standard potassium permanganate solution.	Cr content (Table 1)
	Weighing Balance, Heater/Heating Element, Ashless Filter Paper, Glassware, Ashless Paper Pulp, Stirrer, Platinum Crucible, Hot Plate Reagents: Dilute Sulphuric Acid, Conc. Nitric Acid, Hydrofluoric Acid, Boric Acid Solution (4%), Solid Potassium Bisulphide, Ferrous Sulphate Solution (5%), Alpha-Benzoinoxime, Ethanol, Bromine Water, Dilute Ammonium Hydroxide Solution, Sulphuric Acid-Benzoinoxime Wash Solution, Conc. HCl, Dil. HCl, Solid Tartaric Acid, Hydrogen Sulphide Gas, Hydrogen Sulphide Wash Solution, Cinchonine Hydrochloride	Mo content (Table 1)
6	Vernier Calipers, Scale, Measuring Tape	Size and Tolerance (Clause 7)

The above list is indicative only and may not be treated as exhaustive.

ANNEX C TO THE PRODUCT MANUAL
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for Welding Electrode Core Wire as per IS 10631:1983

Scheme of Inspection and Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING & MARKING – The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L.....) shall be incorporated, and the labelling and marking shall be done as per the provisions of the Indian Standard, provided always that the product thus marked conforms to all the requirement of the specification. In addition, details of BIS website shall be marked as follows: “For details of BIS certification please visit www.bis.gov.in”.

4. CONTROL UNIT – For the purpose of this Scheme, all the billets or wire-rods manufactured at a time from a single cast shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. TEST CERTIFICATE- For each consignment of BIS Certified material conforming to IS 10631:1983 there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit number and the corresponding test results (as given in Annexure-I, enclosed)

7. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016. Any rejected material which is potentially re-salable be sheared or cut or deformed in such a manner that it cannot be used for any other purpose except re-melting. A separate record shall be maintained giving information on quantity and cast number/coil number/control unit number, as applicable, relating to all such rejections/defective/sub-standard material of the production not conforming to the requirements of the Specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the Specification. The Standard Mark (if already applied) on rejected material should be defaced.

TABLE 1
LEVLES OF CONTROL

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	Manufacture	4	IS 10631	R	One	Each Control Unit	-
5 & Table 1	Chemical Composition	IS 228 or any other established instrumental/chemical method		R	One	Each Heat	-
6	Freedom from Defects	6	IS 10631	R	One	Each Control Unit	-
7	Size and Tolerance	7	IS 10631	R	Adequate inspection to ensure each item to be within the limits of specification.		

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories em paneled by the Bureau.

Note 2: The control unit and levels of control as decided by the Bureau are obligatory, to which the licensee shall comply with.

Annexure-I

(Para 6 of the Scheme of Inspection and Testing)

XYZ IRON AND STEEL COMPANY

(Registered office Address and works address)

TEST CERTIFICATE FOR SPECIFICATION FOR STAINLESS STEEL FOR WELDING ELECTRODE CORE WIRE

TEST CERTIFICATE No. _____

DATE _____

To M/s _____

We certified that the material described below fully conforms to IS 10631:1983 Chemical composition and Physical properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks LicenceNo.CM/L_____ are as indicated below against each order No.

(PLEASE REFER TO IS 10631:1983 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

Test Results

Order No and Date	Size/ Shape/ type	Steel Designation	Cast	Quantity	Chemical Composition									Freedom from defects
					C	Si	Mn	Ni	Cr	Mo	Nb	S	P	

REMARKS
WAGON NO
TRUCK NO

FOR XYZ IRON AND STEEL COMPANY

(It is suggested that size A4 paper be used for this test certificate)